

Mr. Roger O. Anderson, Director
Licensing and Management Issues
Northern States Power Company
414 Nicollet Mall
Minneapolis, MN 55401

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SUBJECT: MONTICELLO NUCLEAR GENERATING PLANT - REQUEST FOR ADDITIONAL
INFORMATION ON THE RESOLUTION OF UNRESOLVED SAFETY ISSUE A-46
(TAC NO. M69460)

Dear Mr. Anderson:

The staff has reviewed your Summary Report, dated November 20, 1995, in response to the Unresolved Safety Issue A-46, and determined that additional information is necessary to complete its review. The enclosed request for additional information (RAI) provides details of the required material.

Please provide your response within 90 days of the date of this letter. If you need additional time, or if you have any questions, please contact me at (301) 415-1392.

Sincerely,

Original signed by
Tae Kim, Senior Project Manager
Project Directorate III-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket No: 50-263

Enclosure: As stated

cc w/encl: See next page

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OFFICE	PD31:PM	E	PD31:LA	E	PD31:PD	
NAME	TJKim <i>TJK</i>		CJamerson <i>CMH</i>		JHannon <i>JH</i>	
DATE	1/28/97		1/28/97		1/28/97	

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

January 29, 1997

Mr. Roger O. Anderson, Director
Licensing and Management Issues
Northern States Power Company
414 Nicollet Mall
Minneapolis, MN 55401

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A handwritten signature in cursive script, appearing to read "Tae Kim", is written above the typed name.

Tae Kim, Senior Project Manager
Project Directorate III-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket No: 50-263

Enclosure: As stated

cc w/encl: See next page

Mr. Roger O. Anderson, Director
Northern States Power Company

Monticello Nuclear Generating Plant

cc:

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January 1995

REQUEST FOR ADDITIONAL INFORMATION
MONTICELLO NUCLEAR GENERATING PLANT
USI A-46

Reference: Letter (and Attachments) from Northern States Power Company to USNRC, "Summary Report for Resolution of USI A-46," November 20, 1995.

1. With respect to Section 3.2, page 3-1, discuss the basis for defining the seismic demand for equipment housed in buildings other than the reactor and emergency filtration train (EFT) buildings as equivalent to the demand based on the response spectra generated for the reactor building.
2. With respect to Section 3.2.1, page 3-2, explain in some detail as to how the original floor response spectrum (FRS) data were used to calculate response spectra for the additional oscillator damping.
3. Section 4, "Screening Verification and Walkdown," of GIP-2 under item "Caveats" reads "In order to ...or the generic seismic testing GERS, the equipment (underline added) should be similar (underline added) to the equipment in the earthquake experience equipment class or the generic seismic testing equipment class and..." However, Section 4.1.2, "Caveat Compliance" of the Monticello report (page 4-2) states that "the equipment characteristics (underline added) are generally similar (underline added) to the earthquake experience equipment class." Explain the basis for this apparent deviation from the specific caveat wording of GIP-2 and discuss in detail how the change in the specific wording of GIP-2 caveats impacted the final list of outliers. Also, provide a list of additional outliers which would have been identified if the wording in GIP-2 caveats was not changed.
4. Referring to Table 4-1, "Items Meeting Intent but Not Specific Wording of Caveats," each of the items listed in the table involve some degree of judgment or estimation by licensee personnel in concluding that the intent of applicable caveats was met. For each item listed in the table, provide a discussion of the bases for the judgment or estimation. Also, provide the following additional information:
 - a. For Control Cabinets C-19, C-289A, C-30, C-32 and C-33, provide a comparison to show that a through-bolt is equivalent to a cast in place bolt in meeting the intent of caveats.
 - b. For Hydraulic Control Units CRD HCU E and W, provide the computation pertaining to the adequacy of fluid operated valves, the pneumatic controls (e.g., solenoid valves) and the overhead lines of the HCUs.
 - c. For ECCS Area Drain Pumps, P-88A, B, C and D, discuss in detail how these vertical centrifugal drain pumps meet the intent of Class 6 caveats.

ENCLOSURE

- d. For relief valves RV-4236 and RV-4673 (each of which is mounted off a 3/4" line), provide the calculation to show that the seismic stress is less than the allowable stress for the attached piping to ensure the seismic adequacy of the valve support.
 - e. For Conduit in Area RB-A30 and Dampers Controllers TC-8089C and TC-8089L in the diesel room, discuss in detail the tug test performed by the SRT, and provide the basis for concluding the acceptability of the clamp supports and anchorage.
5. In reference to Section 4.1.3, the report states that anchorages were rigorously analyzed using hand calculation and ANCHOR software package. Provide samples of the anchorages engineering calculations. Also, discuss a few cases of anchorage verification based on results of tug tests conducted and provide a description of the tests and the engineering justification for such an approach.
 6. With respect to Section 4.3.2, "Comments About Anchorage," the last sentence of the second paragraph on page 4-7 reads: "Wall mounted equipment was not subject to a tightness check as allowed by the GIP because..." Identify the specific provision of the GIP-2 which allows such an exemption from performing the needed tightness check.
 7. With respect to Section 4.3.2, third paragraph, discuss the extent of inspection implemented by a so-called "random 'spot' embedment check," and elaborate on the validity of the conclusion drawn from such a spot check with no identified installation problems.
 8. Provide information regarding the seismic adequacy verification implemented under IE Bulletin 80-11 for a list of masonry block walls which were identified by the SRT to possess a II/I implication and a potential of collapsing on items listed in the SSEL.
 9. Section 7.1.2 of GIP-2 specifies that a SQUG licensee perform a four-step engineering evaluation for verifying the seismic adequacy of tanks and heat exchangers according to guidelines provided in the section. However, under Section 5.1 of the licensee's report, it is stated on page 5-1, that "the Seismic Capability Engineers performed the evaluation such that they meet the intent (underline added) of these guidelines..." Clarify whether the GIP-2 guidelines were always met, or identify any deviations from the guidelines where only the intent of the GIP-2 was satisfied.
 10. With respect to the Diesel Oil Storage Tank (T-44) listed in Table 5-1, provide the rationale (supported by engineering analysis) for concluding that no large relative motion between the tank and the Pump House will take place during the SSE.
 11. With respect to Section 6.1, discuss in greater detail the basis for judging that conduit and cable tray supports in some inaccessible areas are acceptable and provide examples which led to such a conclusion.

12. Regarding Section 6.5, indicate why there were no rod hanger supports chosen for the Limited Analytical Review (LAR). Also, discuss the basis for selecting the cases shown on Table 6-2 and the rationale for judging that selection of 12 LAR cases is sufficiently adequate to represent the entire population of raceway and conduit supports.
13. Regarding Section 7, describe the approach which will be used to obtain the more realistic in-structure demand for the outlier pumps in the intake structure.
14. In Table 8-1, only proposed outlier resolutions were included. Provide results of evaluations, tests, calculations and equipment modifications and replacements used to resolve outliers, as required by Section 9 of the GIP-2. Also, provide the justification to ensure that the proposed schedule for resolving all the identified outliers or open items prior to the end of 1998 refueling outage, does not lead to a potential safety significant scenario.
15. Referring to the Monticello Nuclear Generating Station A-46 Seismic Third Party Audit Report, the peer reviewers did not perform the walkdown of inaccessible areas due to radiological concerns including the Primary Containment, the Reactor Water Cleanup Room and Main Steam Tunnels. Discuss the general approach taken by the SRT in dealing with items listed in the SSEL that are located in inaccessible areas, and the rationale for concluding that the items are properly verified for their seismic adequacy.
16. Describe any corrective measures taken to address the peer reviewers comments as described in Appendix E of Attachment 1, for example, (1) Cabinet C-253A is about 1/4" away from cabinet Y-25 and may be an impact hazard, and (2) Cabinet C-27 contains a flexible RPIS Translation Electronics rack with circuit boards that could pop out under seismic loads. The findings in these examples were not addressed in Table 7-1, Equipment Outliers.
17. Regarding Appendix C of Attachment 2, "USI A-46 Resolution, Relay Evaluation Report, Monticello Nuclear Generating Plant," of the submittal, provide a discussion and specific examples of relays whose malfunction (i.e. chatter) is acceptable. These relays were identified as "Chatter Acceptable (CA)" in the Appendix.
18. Appendix C of Attachment 2, "Operator Actions," specifies relay/component combinations which are resolved by operator actions. Clarify how these operator actions were verified and validated to ensure that under the postulated conditions of a design-basis earthquake they could be adequately executed. What field and control room simulator scenarios were developed to verify and validate that these operator actions could be accomplished in the time frame required to facilitate safe shutdown? How were potentially harsh environmental conditions (e.g. blackout, high temperature and high pressure) factored into these analyses?

19. In addition to the outliers addressed in Tables 5-1 and 7-1 with respect to use of Clinch anchors, confirm that RHR Heat Exchangers E-200A and E-200B were evaluated and found structurally adequate in accordance with the rules and procedures given in Section 7 of the GIP.
20. Provide computations pertaining to the seismic adequacy of the Standby Diesel Generator Day Tanks (T-45A and T-45B). Include the calculations of the seismic adequacy of their saddle supports and anchorages.
21. Referring to the in-structure response spectra provided in your 120-day-response to the NRC's request in Supplement No. 1 to Generic Letter 87-02, dated May 22, 1992, provide the following information:
 - a. Identify structure(s) which have in-structure response spectra (5% critical damping) for elevations within 40-feet above the effective grade, which are higher in amplitude than 1.5 times the SQUG Bounding Spectrum.
 - b. With respect to the comparison of equipment seismic capacity and seismic demand, indicate which method in Table 4-1 of GIP-2 was used to evaluate the seismic adequacy for equipment installed on the corresponding floors in the structure(s) identified in Item (a) above. If you have elected to use method A in Table 4-1 of the GIP-2, provide a technical justification for not using the in-structure response spectra provided in your 120-day-response. It appears that some A-46 licensees are making an incorrect comparison between their plant's safe shutdown earthquake (SSE) ground motion response spectrum and the SQUG Bounding Spectrum. The SSE ground motion response spectrum for most nuclear power plants is defined at the plant foundation level. The SQUG Bounding Spectrum is defined at the free field ground surface. For plants located at deep soil or rock sites, there may not be a significant difference between the ground motion amplitudes at the foundation level and those at the ground surface. However, for sites where a structure is founded on shallow soil, the amplification of the ground motion from the foundation level to the ground surface may be significant.
 - c. For the structure(s) identified in Item (a) above, provide the in-structure response spectra designated according to the height above the effective grade. If the in-structure response spectra identified in the 120-day-response to Supplement No. 1 to Generic Letter 87-02 was not used, provide the response spectra that were actually used to verify the seismic adequacy of equipment within the structures identified in Item (a) above. Also, provide a comparison of these spectra to 1.5 times the Bounding Spectrum.